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ABSTRACT

To examine three teachers' communication to individual students during their attempts to individualize instruction, a class of sixth grade students was videotaped as it spent a week in science, in social studies, and in mathematics. Tapes were analyzed using a modified form of Bellack's observation system. With the pedagogical move as the primary unit of analysis, the emitter(s) and target(s) of each move were coded with pupils individually identified in over 95 percent of all moves. Each move was coded as to whether it had substantive meaning (dealing with subject matter) or instructional meaning (dealing with assignments, materials, procedures, and other nonsubstantive topics). Data was analyzed to reveal 1) the percentage range in teacher usage of each move type (structuring, soliciting, responding, reacting); 2) number of moves directed to each pupil per class; 3) percentage range of teacher moves in type of meaning communicated (substantive or instructional); and 4) the various types of teacher ratings (none, positive, negative, or both) received by pupils. Results give evidence of ccnsiderable consistency of teacher role as he reacts with different pupils in an individualized format. His primary function remains soliciting, and the functions he performs least frequently are structuring and responding. Although his functions do not vary greatly, the frequency of interaction varies greatly across pupils, as does the content of the interaction. (JS)

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AN ANALYSIS OF TEACHER COMMUNICATIONS TO INDIVIDUAL PUPILS WHEN INSTRUCTION IS INDIVIDUALIZED

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The objective of this study was to examine teachers' communications to individual students in one class as the class spent a week in each of three subjects where the teachers were attempting to individualize instruction.

A class of sixth grade students was video taped as it spent a week in science, in social studies, and in mathematics. The video tapes were analyzed by way of a modified form of Bellack's observational system. The modifications included 1) addition of categories to encode data available through the video tapes that were not available in audio tapes, and 2) elaboration and elimination of categories to fit the situation where several kinds of content were taught through an individualized format.

The pedagogical move was taken as the primary unit of analysis. The emitter(s) and target(s) of each move were coded. Pupils were not generally grouped under a common pupil category but, when there were four or fewer as emitter or target, each pupil was individually identified. Pupils were individually identified in over 96% of all moves. The move was coded as to whether it had substantive (dealing with subject matter) meaning or instructional (dealing with assignments, materials, procedures, and other non substantive topics) meaning. It was further coded as to the type of logical process used. Contextual variables, namely the location of the group and the size of the group in which the move occurred, were also coded.

In a previous paper[1] results from these same data were presented. Briefly, these indicated that the teacher and pupil roles were different when instruction was individualized than when it was in a large group context. All moves were more equally distributed between teacher and

pupils. For the three teachers together, 4.3% of the moves were structuring, 57.8% soliciting, 9.9% responding, and 28.0% reacting. These figures indicate the amount of time the teacher performed different functions with the "composite pupil." The question arises, when the interactions of each teacher with each pupil are examined, does the teacher still play the same role or does his role change with different pupils?

The data in Table I give the range of each teacher's behavior across different pupils. In establishing these ranges only those pupils were

TABLE I

Teacher Moves Directed to Individual Pupils:
The Percentage Range in Teacher Usage of Each Move Type

Subject	Move Type	% Range
Mathematics	Structuring	0.0% - 13.3%
	Soliciting	45.0% - 75.0%
	Responding	0.0% - 13.3%
	Reacting	20.0% - 46.7%
Social Studies	Structuring	0.0% - 14.3%
	Soliciting	32.4% - 75.9%
	Responding	0.0% - 25.0%
	Reacting	5.9% - 41.7%
Science	Structuring	0.0% - 9.1%
	Soliciting	49.1% - 83.3%
	Responding	3.6% - 18.2%
	Reacting	0.0% - 37.0%
All Subjects	Structuring	0.0% - 9.9%
	Soliciting	48.1% - 70.3%
	Responding	4.1% - 18.6%
	Reacting	17.3% - 42.2%

considered toward whom the teacher directed ten or more moves during the week. Thus the ranges are for moves directed toward 20 pupils in mathematics, 19 pupils in social studies, and 24 pupils in science. All 25 pupils are represented in the figures for the three classes combined.

The ranges of moves are moderate. In no case do the number of teacher structuring moves exceed 15% of his moves and in most cases the figure is below 10%. The percentage of moves through which the teacher responds to the pupil also tends to be rather small, although this is not true of the social studies teacher. He varied more from pupil to pupil in his use of the four moves than did the mathematics or science teachers. The one instance in which another pedagogical move (reacting) was used more frequently than the soliciting move occurred in his class. Except for the interaction of the social studies teacher with this one pupil, the primary role of each teacher with each pupil was soliciting.

The number of moves directed to different pupils varied considerably in each class. The figures in Table II represent the number of moves per 100 pages of typescript for which the pupil was in class. In mathematics the figures ranged from 3 to 147 moves directed by the teacher to an individual pupil per 100 pages that the pupil was in class. The range in social studies was 4 to 86 and in science it was 10 to 111 moves per 100 pages. Comparing the figures for each pupil with the mean number of moves directed to a pupil per 100 pages, 36% of the pupils received fewer than their share of teacher utterances in each of the three classes. 8% received more than their share of teacher talk in each class. To a considerable extent different teachers tend to talk, or not to talk, to the same pupils.

TABLE II

Number of Moves Directed to Each Pupil per 100 Pages of Typescript in Class

Pupil	Mathematics	Social Studies	Science	All Subjects
1	18.1	50.0	66.9	48.7
2	4.6	40.8	32.0	27.6
3	12.1	14.4	37.9	20.0
4	27.2	35.2	32.4	32.1
5	7.5	7.8	68.3	32.9
6	22.7	4.9	17.6	13.5
7	19.6	17.2	50.5	29.0
8	15.1	24.4	9.6	18.8
9	14.0	47.4	26.1	27.3
10	28.0	3.9	17.1	16.4
11	28.0	76.5	30.7	43.0
12	18.3	8.4	41.2	21.9
13	6.0	35.2	68.3	42.3
14	2.7	23.5	42.2	26.3
15	18.6	70.9	93.7	62.6
16	39.2	86.0	77.6	66.2
17	146.7	24.6	67.7	80.5
18	18.1	25.0	32.8	25.3
19	24.2	62.7	57.2	47.8
20	91.5	28.9	58.9	64.2
21	16.8	16.8	74.6	39.4
22	14.2	23.2	36.8	25.9
23	112.9	4.3	77.0	67.7
24	66.2	36.2	111.6	71.6
25	65.4	21.4	106.7	75.0
Mean	35.2	31.2	58.1	42.0

As reported in a previous paper[2], one of the most striking aspects of these individualized classes was the low ratio of substantive to instructional discourse. 20.4% of the mathematics teacher's moves, 11.7% of the social studies teacher's moves, and 12.4% of the science teacher's

moves dealt directly with subject matter. Table III shows how this varies with individual pupils.

TABLE III

Teacher Moves Directed to Individual Pupils:
The Percentage Range in the Type of Meaning Communicated

Subject	Range in Substantive Meaning	Range in Instructional Meaning
Mathematics	0.0% - 55.2%	51.7% - 100%
Social Studies	0.0% - 54.1%	51.4% - 100%
Science	0.0% - 27.3%	77.3% - 100%

In mathematics from 0.0% to 55.2% of the moves directed to individual pupils conveyed substantive meaning. In social studies the range was from 0.0% to 54.1% and in science the range was from 0.0% to 27.1%. In general it is true that the more moves that are directed to a pupil the more likely it is that the percentage of substantive moves directed to him will exceed the average percentage of substantive moves made by the teacher. In social studies and mathematics it was also true that if a pupil had more than the average percentage of substantive moves directed to him, he also had more than the average number of moves directed to him. In mathematics 80% of those receiving more than the average percentage of substantive moves also received more than the average nymber of moves. This was true of 71.4% in social studies but only 40% in science.

In these classes the teachers rated pupils in the ratio of five positive ratings to one negative rating. 15.8% of all teacher moves were ratings. Almost all pupils who received 10 or more moves received some positive ratings (see Table IV). In mathematics no such pupil

TABLE IV

Number of Pupils Receiving 10 or More Moves Who Received Various Types of Teacher Ratings

Subject	No Rating	Positive	Negative	Positive & Negative
Mathematics	0	9	0	11
Social Studies	1	7	1	10
Science	1	9	0	14
All Subjects	0	2	0	23

failed to receive a positive rating. In social studies and science there were two and one such pupils respectively. Positive ratings were something which almost all of these pupils received each week in each of the three individualized classes. Negative ratings were also common. Between 55% and 58% of the pupils in each subject who were targets for 10 or more moves received negative or qualifying ratings.

This study gives evidence of considerable consistency of teacher ro role as he interacts with different pupils in an individualized format. His primary function remains soliciting and the functions he performs least frequently are structuring and responding. Although his functions do not vary greatly, the frequency of interaction varies greatly across pupils, as does the content of the interaction.

END NOTES

[1]James L. Neujahr, "An Analysis of Individualized Instruction", paper presented atAERA annual meeting, Minneapolis, March, 1970.

[2]Ibid.